Regional Water Quality Control Board
Central Valley Region

Board Meeting – 07, 08 June 2012

Response to Written Comments on
Tentative Waste Discharge Requirements
for
Grizzly Lake Community Services District
Delleker Wastewater Treatment Plant
Plumas County

11 May 2012

At a public hearing scheduled for 07/08 June 2012, the Regional Water Quality Control Board, Central Valley Region (Central Valley Water Board) will consider adoption of Waste Discharge Requirements for Grizzly Lake Community Services District, Delleker Wastewater Treatment Plant in Plumas County. This document contains responses to comments received from the Discharger and Central Valley Clean Water Association (CVCWA) in response to the Tentative Orders. Written comments from designated/interested parties were required to be received by the Central Valley Water Board by 2 May 2012 in order to receive full consideration. Comments were received from:

1. Grizzly Lake Community Services District (Discharger) – received on 01 May 2012
2. Central Valley Clean Water Association (CVCWA) – received on 02 May 2012

Written comments from the designated and interested party are summarized below, followed by the response of Central Valley Water Board staff.

GRIZZLY LAKE COMMUNITY SERVICES DISTRICT

GRIZZLY LAKE COMMUNITY SERVICES DISTRICT – COMMENT #1: Request deletion of Treatment Pond Operating Requirements for pH.

The Grizzly Lake CSD has reviewed the draft WDR/NPDES Permit CA0081744 in its entirety. While this permit represents and includes major changes and additional requirements, we have no objections, save one. We believe the requirements of the permit are generally fair and reasonable, especially in giving consideration to time schedules for implementation of various studies and reports.

We have one objection and requested change which we believe is relatively minor within the context and intent of the draft permit. Specifically, we request deletion of one item in Section 4. Construction, Operation and Maintenance Specifications, a. Treatment Pond Operating Requirements, v. “Ponds shall not have a pH less than 6.0 or greater than 9.0”

We believe it is inappropriate and counterproductive to achieving discharge requirements by establishing constraints on a specific operating condition of a natural treatment system. It is well known that algae growing in natural treatment ponds affect pH as it relates to uptake of carbon dioxide (CO2) during the diurnal cycle. During daylight hours, algae use CO2 as their carbon source while concurrently taking up and converting nitrogen. As this occurs, the pH of the treatment system will naturally elevate during daylight hours, often in excess of pH 10. Then, during dark hours, when algal activity becomes dormant and CO2 production resumes, the pH will decrease.

This is a part of a natural cycle and there is no practical means to adequately and economically control pH in the existing treatment process. The requirement, as put forth, would require design and installation of expensive chemical feed and pond mixing systems.

Further, reduction of the pH in the treatment system would affect natural uptake of CO2 and reduce the treatment efficiency of the process. Under natural conditions, absence of CO2 during this period of the cycle limits the production of algae, which otherwise contributes to particulate BOD and TSS in the final effluent. Arbitrarily reducing the pH of the treatment process would likely result in additional algal production, which will result in elevated BOD and TSS in the discharge. This is counterproductive to the intent of the permit.

Alternatively, the Discharger intends to implement pH control of the effluent prior to discharge to meet specific permit requirements. This will also be a component of the Salinity Reduction Plan and will result in reduced consumption of disinfection and dechlorination chemicals, which contribute to salinity and electrical conductivity. The discharger intends to meet permit requirements for pH, BOD and TSS without disruption of or expensive modifications to the treatment system.

Therefore, we respectively request that this specific requirement, which pertains solely to operating conditions, not discharge, be deleted from the permit.

RESPONSE: Central Valley Water Board staff concurs, however the treatment pond operating requirements have been modified as follows, instead of being deleted:

VI. PROVISIONS
- *C. Special Provisions*
  - *4. Construction, Operation and Maintenance Specifications*
    - *a. Treatment Pond Operating Requirements*
      - *v. Ponds shall not have a pH that causes violations of effluent or receiving water limitations.*

CENTRAL VALLEY CLEAN WATER ASSOCIATION (CVCWA)

CVCWA – COMMENT #1: Mixing Zones and Dilution Credits – The Tentative Order should be revised to grant a dilution credit to both copper and the chronic toxicity trigger limitation, and any other constituents as appropriate.

The Tentative Order appears to inappropriately mischaracterize application of the mixing zone policy as it is contained in the state's *Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California* (SIP), and as it is applied in the Tentative Order. Based on the information in the Fact Sheet of the Tentative Order (pp. F-16 – F-17), the Tentative Order establishes a dilution credit of 10:1 based on the previous permit. However, the Fact Sheet clearly indicates that in consideration of the discharge prohibitions, minimum flows in the Feather River during discharge are set at 40 cubic feet per second (cfs). Further, based on a maximum permitted discharge flow, the ultimate dilution achieved is 260:1, and that the worst-case dilution reported was 77:1. Considering the amount of worst-case dilution available, the Tentative Order inappropriately sets the amount of dilution at 10:1, and inappropriately denies dilution credits for certain constituents such as copper and chronic toxicity. The Fact Sheet does not provide sufficient description or detail to explain why the amount of dilution was set at this level, except to state that for non-California Toxics Rule (CTR) constituents the Tentative Order is relying on the *USEPA Technical Support Document for Water Quality-Based Toxics Control (EPA/505/2-90-001)* (TSD) to determine the appropriate dilution credit. (Tentative Order, p. F-15.) However, for the constituents at issue here (ammonia, copper & chronic toxicity), the SIP applies. (SIP, p. 15, "…in establishing and determining compliance with effluent limitations for applicable human health, acute aquatic life, or chronic aquatic life priority pollutant criteria/objectives or the toxicity objective for aquatic life protection in a RWQCB basin plan, the RWQCB may grant mixing zones and dilution credits to dischargers in accordance with the provisions of this section.")

With respect to application of the SIP, it appears that the Tentative Order denies the full amount of dilution credit, and denies application of dilution credits to some constituents because a mixing zone and dilution study has not been conducted by the discharger. However, the Tentative Order appears to incorrectly conclude that such a study is required for this discharger. Under the SIP, mixing zones and dilution studies are only required for incompletely-mixed discharges. (SIP, p. 16.) For completely-mixed discharges, the SIP states that the dilution ratio shall be calculated using the flow ratios specified in Table 3 of the SIP, which are the 1Q10, 7Q10 and harmonic mean receiving water flow rates for acute, chronic and human health criteria, respectively. In such a case the dilution credit is set at an amount that is no greater than the dilution ratio, and may be smaller if necessary to protect beneficial uses. (SIP, p. 16.) Completely-mixed discharges are defined to mean, "condition means not more than a 5 percent difference accounting for analytical variability, in the concentration of a pollutant exists across a transect of the water body at a point within two stream/river widths from the discharge point." (SIP, Appendix p. 1-1.)

In this case, the Tentative Order describes the outfall location as one being turbulent where “nearly instantaneous mixing of the effluent will result.” The Tentative Order further states that at low flow the receiving water is approximately 40 feet wide and approximately one foot deep. (Tentative Order, p. F-17.) Based on the descriptions of the discharge, it appears that this discharge meets the definition of being a completely-mixed discharge. However, the mixing zone/dilution study requirement and the denial of other dilution credits suggests that the Central Valley Water Board staff are treating this discharge as one that is incompletely-mixed, and therefore subject to specified study requirements contained in the SIP. (See, e.g., Tentative Order, p. F-31, WQBELs for copper, “No dilution was granted in the development of the effluent limits because the Discharger has not conducted a dilution/mixing zone study, which is required prior to granting dilution credits for priority pollutants.”) To avoid confusion and to ensure proper application of the SIP, CVCWA recommends that the Tentative Order be revised to clarify that the discharge is considered to be a completely-mixed discharge, and then calculate the appropriate dilution credits for all three types of criteria: acute, chronic and harmonic mean. At the very least, if the Central Valley Water Board determines that there is not sufficient information available to determine if the discharge meets the definition of being completely-mixed, then the discharger should be allowed to obtain that specific and relevant information versus being required to conduct a full mixing zone study as indicated in the Tentative Order.

Moreover, assuming that there is sufficient information to characterize the discharge as completely-mixed, the Tentative Order must be revised to grant dilution up to the calculated ratio. If the Central Valley Regional Board then determines that it is necessary to truncate any of the water quality based effluent limitations to protect beneficial uses, then such a finding and explanation must be made. Specifically, the Tentative Order should be revised to apply a dilution ratio that is larger than the 10:1 for ammonia that is currently proposed. Further, the Tentative Order should be revised to grant a dilution credit to both copper and the chronic toxicity trigger limitation, and any other constituents as appropriate.

RESPONSE: Central Valley Water Board staff concurs that a discussion should be included in the Assimilative Capacity/Mixing Zone section of the Fact Sheet detailing that there is not sufficient information available to determine if the discharge meets the definition of a completely mixed or incompletely mixed discharge. Although the tentative Order states that “some nearly instantaneous vertical mixing of the effluent will result”, it is not likely that the discharge will meet the conditions of a completely mixed discharge based on similar discharges that have been evaluated in the area of the outfall; for example, the City of Portola WWTP, which discharges a quarter mile downstream of the Delleker WWTP, was evaluated via a model and dye study in 2009 and determined to be an incompletely mixed discharge. In addition, the Delleker WWTP does not discharge through a diffuser, also reducing the likelihood of a completely mixed discharge. It should be noted that the requirement for a mixing zone/dilution study allows the Discharger to do a preliminary evaluation of their

discharge to determine if it meets the definition of a completely mixed discharge. Therefore, the tentative Order correctly requires that the Discharger complete an independent mixing zone study to: verify the dilution credit of 10:1 for ammonia allocated in the Order, justify requesting additional dilution for ammonia if verified by the mixing zone study, and justify requesting dilution for copper and/or chronic toxicity. The tentative Order includes a reopener that allows the Central Valley Water Board to adjust the effluent limitation based on the results of the mixing zone/dilution study. The tentative Order include interim limits for ammonia and a compliance schedule to allow the Discharger sufficient time to perform a mixing zone study and/or upgrades to the plant.

A mixing zone study is required by the SIP in order to grant a mixing zone and dilution credit for priority pollutants (copper) and toxicity objectives for aquatic life; therefore, a dilution credit was not granted for copper and the chronic toxicity trigger. Interim limits and a compliance schedule for copper were included in a Time Schedule Order to allow the Discharger sufficient time to perform a mixing zone study and/or upgrades to the plant. Chronic toxicity results for the Discharger do not indicate the need for a dilution credit; therefore, the chronic toxicity monitoring trigger of >1 is appropriate.

CVCWA – COMMENT #2: Ammonia Reasonable Potential Analysis – The Tentative Order needs to be revised to remove the references with respect to step 7 of the SIP and the discussion regarding the facility following the statement. Reasonable potential here should be based solely on step 4 and the inclusion of all other information is inappropriate.

With respect to ammonia, the Fact Sheet in the Tentative Order states as follows: “Per Section 1.3, Step 7, of the SIP, the facility type may be used as information to aid in determining if a WQBEL is required.” (Tentative Order, p. F-29.) Based on this statement and the effluent data, the Fact Sheet finds that the ammonia discharge has reasonable potential to cause or contribute to an excursion of the applicable water quality criteria. CVCWA has concerns with the inclusion of the quoted statement in context with determining reasonable potential for ammonia. Based on the information in the fact sheet, it appears that there is reasonable potential for ammonia based on step 4 of the SIP. (SIP, p. 6, MEC greater than or equal to the criteria.) Because reasonable potential exists under step 4, step 7 does not apply. Step 7 of the SIP is the step where reasonable potential may be found based on “other information” to protect beneficial uses notwithstanding the analysis in steps 1 through 6. In other words, step 7 may be used by a regional board if reasonable potential does not exist under the other steps. Thus, its use and reference here is inappropriate.

Further, step 7 states that a regional board may use *other information* to determine if a water quality based effluent limitation is required. It does not state what the other information may include. However, based on a complete reading of step 7, the other information must be reasonably related to the need for a WQBEL and the need for protecting the beneficial uses. Just because a facility may discharge ammonia does not

automatically mean that the beneficial uses are at risk. To determine risk to beneficial uses, the Central Valley Water Board must evaluate the effluent quality, water quality, water quality criteria, and a number of other factors. It is inappropriate to conclude that a certain type of facility alone creates a risk to beneficial uses. Accordingly, the Tentative Order needs to be revised to remove the references with respect to step 7 of the SIP and the discussion regarding the facility following the statement. Reasonable potential here should be based solely on step 4 and the inclusion of all other information is inappropriate.

RESPONSE: Central Valley Water Board staff concurs, and have removed reference to step 7 of the SIP as requested on Page F-29 of the Tentative Order, in reference to Ammonia.

CVCWA – COMMENT #3: Groundwater Limitations – CVCWA therefore believes that the Regional Water Board's adoption of the groundwater limitations of 700 µhmos/cm for EC and 450 mg/L for TDS are similarly inappropriate.

The Tentative Order includes groundwater limitations of 700 micromhos per centimeter (µhmos/cm) for EC and 450 milligrams per liter (mg/L) for TDS to protect the agricultural use. (Tentative Order at pp. 14-15, F-35, F-47.) The numeric values for these groundwater limitations were derived from "Water Quality for Agriculture" by Ayers and Wescot, Food and Agriculture Organization of the United Nations (1985) (UN Report). (*Id*. at pp. F-34, F-35, F-47.) The Tentative Order finds that the groundwater limitation for TDS is appropriate to protect the agricultural use in the absence of information to support a less protective limitation. (Id. at p. F-47.) The Tentative Order does not explain why the EC groundwater limitation is appropriate, nor does the Tentative Order address any site-specific factors that may warrant groundwater limitations different than those specified in the UN Report.

The State Water Resources Control Board (State Water Board) addressed application of the UN Report in Order WQO 2004-0010.1 In that order, the State Water Board determined that the UN Report's salinity value of 700 µmhos/cm for EC "cannot be interpreted as an absolute value" and adopted into the City of Woodland's permit as an effluent limitation. (Order WQO 2004-0010 at p. 7.) "Rather, the Regional Board must determine whether site-specific conditions applicable to Woodland's discharge allow some relaxation in this value." (*Ibid*.) The State Water Board explained that the preface to the UN Report makes clear that the true suitability of a water body depends on the specific conditions of the use and on the management capability of the user. *(Ibid*.) The State Water Board further explained that there are a variety of options available for managing salinity. (*Ibid*.) The State Water Board concluded that the Central Valley Regional Water Quality Control Board (Regional Water Board) needed to consider site-specific conditions to determine the appropriate effluent limitation, rather than adopting the agricultural water quality goal. (*Id*. at p. 8.)

CVCWA therefore believes that the Regional Water Board's adoption of the groundwater limitations of 700 µhmos/cm for EC and 450 mg/L for TDS are similarly inappropriate. We submit that any groundwater limitations for these constituents applicable to the WWTP should be based on a thorough consideration of site-specific conditions. We request that you revise the Tentative Order accordingly.

1 State Water Board Order WQO 2004-0010, *In the Matter of the Own Motion Review of City of Woodland Waste Discharge Requirements Order No. R5-2003-0031 [NPDES No. CA0077950] and Cease and Desist Order No. R5-2003-0032* (Sept. 2, 2008).

RESPONSE: Central Valley Water Board staff concurs and the EC and TDS groundwater limits have been adjusted to the applicable drinking water standards of 900 umhos/cm and 500 mg/L, respectively. The Central Valley Salinity Alternatives for Long-Term Sustainability (CV-SALTS) is a collaborative basin planning effort aimed at developing and implementing a comprehensive salinity and nitrate management program. One of the goals of CV-SALTS is to develop a methodology for determining the appropriate salinity objectives for the protection of agricultural beneficial uses. The proposed permit has been revised to implement groundwater limits protective of the MUN beneficial use, and to direct the discharger to work with CV-SALTS in establishing appropriate objectives for protection of agricultural beneficial uses. The proposed permit has also been revised to include a reopener provision to allow the groundwater limits to be updated in the future as appropriate, based on new information.